at least one first node, bidirectionally coupled to each of the first communication terminals through a corresponding first one of the communication links and a corresponding second one of the communication links, the at least one first node also being coupled to at least one second terminal through at least a third one of the communication links, said at least one first node comprising:

a plurality of communication paths, each for routing signals being communicated between a corresponding one of the first communication terminals and the at least one second terminal, each communication path having a first end coupled to a respective one of the first communication links and a second end coupled to the third communication link,

a switch having a plurality of first terminals and a second terminal, each of the first terminals being coupled to a respective one of the second communication links, the second terminal being coupled to the third communication link, and

a controller, coupled to said switch, and being responsive to applied input information for controlling said switch to couple a corresponding one of the second communication links to the third communication link, for

providing an alternate route through those links for routing the signals.

70. A communication network as set forth in Claim 69, wherein each of the first communication terminals provides signals to said first node over either the first or second communication link coupled thereto, depending on which link is determined to be active by that first communication terminal.

71. A communication network as set forth in Claim 69, wherein each of the first communication terminals accepts signals from either the first or second communication link coupled thereto, depending on which link is determined to be active by that first communication terminal.

72. A communication network as set forth in Claim 69, wherein said first node further comprises a detector for detecting a failure in at least one of said communication paths, said first node is coupled to the at least one second communication terminal through both the third communication link and at least one other node, and said controller is

coupled to an output of said detector and to the at least one other node, and is responsive to said detector detecting the failure for notifying the at least one other node of the detected failure.

73. A communication network as set forth in Claim 69, wherein said first node is coupled to the at least one second communication terminal through both the third communication link and at least one other node, wherein said controller is coupled to the at least one other node, and is responsive to receiving from the other node information indicating that a failure has been detected in that other node for controlling said switch to couple a corresponding one of the second communication links to the at least one third communication link.

74. A communication network as set forth in Claim 69, further comprising a multiplexer/demultiplexer interposed between the third communication link and said plurality of communication paths, said multiplexer/demultiplexer having a terminal coupled to the third communication link and a

plurality of other terminals each of which is coupled to the second end a respective one of said communication paths.

75. A communication network as set forth in Claim 69, further comprising a plurality of transponders, each of which is interposed in a respective one of said communication paths.

76. A communication network as set forth in Claim 75, further comprising another transponder interposed between an output of said switch and the third communication link.

77. A communication network as set forth in Claim 76, further comprising a multiplexer/demultiplexer interposed between the third communication link and said communication paths, said multiplexer/demultiplexer having one terminal coupled to the third communication link and a plurality of other terminals, each of which is coupled to a respective one of said transponders.

78. A communication network as set forth in Claim 75, wherein said controller is responsive to the applied

input information indicating that a failure has been detected in at least one of the communication paths for controllably disabling the transponder interposed in that at least one communication path.

79. A communication network as set forth in Claim 78, wherein said controller also is responsive to applied input information indicting that the at least one communication path has become active for controllably enabling the transponder interposed in that at least one communication path.

80. A communication network as set forth in Claim 69, further comprising a second node, wherein said first node is coupled to the at least one second communication terminal through both the third communication link and the second node, and there are a plurality of the second communication terminals, wherein the second node is coupled to each second communication terminal through both a fourth one of the communication links and a fifth one of the communication links, and wherein second node comprises:

a plurality of further communication paths for routing signals being communicated between said first and second communication terminals through the second node, each further communication path having a first end coupled to the third communication link and a second end coupled to a respective fourth communication link;

a further switch having a plurality of first terminals and a second terminal, each of the first terminals of said further switch being coupled to a respective fifth communication link, the second terminal of said further switch being coupled to the third communication link; and

a further controller, coupled to said at least one detector and to said further switch, and being responsive to applied input information indicating that a failure has been detected in at least one of said further communication paths for controlling said further switch to couple a corresponding one of the fifth communication links to the third communication link, for providing an alternate route through those links for routing the signals.

81. A communication network as set forth in Claim 80, wherein said controller of said first node is coupled to

said further controller of the second node, and said further controller notifies the controller of a detection of a failure in a communication path.

82. A communication network as set forth in Claim 80, wherein said controller also is coupled to said further controller, and said controller is responsive to receiving from the further controller an indication that a failure has been detected in one of said further communication paths for controlling said switch to couple a corresponding one of the second communication links to the third communication link, for providing an alternate route for routing the signals through those links.

83. A communication network as set forth in Claim 69, wherein said at least one first node further comprises a detector for detecting a failure in at least one of said communication paths and applying the input information to the controller.

84. A communication network, comprising:

a plurality of communication terminals, including at least a first communication terminal, a second communication terminal, and a third communication terminal;

a plurality of communication links; and

at least one node, coupled to (a) the first communication terminal through both a first one of the communication links and a second one of the communication links, (b) the second communication terminal through each of a third one of the communication links, a fourth one of the communication links, and a fifth one of the communication links, and (c) the third communication terminal through at least one sixth communication link, said at least one node comprising:

a plurality of communication paths for routing signals being communicated between the first and third communication terminals and between the second and third communication terminals through the at least one node, said communication paths including a first communication path, a second communication path, and a third communication path, each first communication path having a first end coupled to the first communication link and a second end coupled to the at least one sixth communication link, each second

communication path having a second end coupled to the at least one sixth link, and each third communication path having a first end coupled to the third communication link and a second end coupled to the at least one sixth link,

at least one splitter, each at least one splitter having an input and first and second outputs, the input and first output of said at least one splitter being coupled in a corresponding one of said first communication paths,

a first switch having an input terminal coupled to the at least one sixth communication link, and a plurality of output terminals, at least one of which is coupled to the fifth communication link,

a plurality of second switches, a first input terminal of at least one of said second switches being coupled to the second output of a corresponding one of said splitters, a second input terminal of that at least one second switch being coupled to the fourth communication link, and an output terminal of that at least one second switch being coupled to the at least one sixth link, and wherein a first input terminal of at least one other second switch is coupled to a first end of a corresponding one of said second communication paths, a second input terminal of that at least

one other second switch is coupled to a corresponding one of the output terminals of said first switch, and an output terminal of that at least one other second switch is coupled to the second communication link,

a controller being responsive to applied input information indicating that a failure has been detected in at least one of said first, second, or third communication paths for controlling one or more of said first and second switches to couple either the second output of a corresponding splitter, or the second, fourth, or fifth communication link, to the at least one sixth communication link, for routing signals therethrough.

85. A communication network as set forth in Claim 84, wherein said controller is responsive to the applied input information for controlling said at least one second switch to couple the second output of said splitter to the at least one sixth communication link.

86. A communication network as set forth in Claim 84, wherein said controller is responsive to applied input information indicating that a failure has been detected in

said second communication path for controlling said first switch and said at least one other second switch to couple the at least one sixth communication link to the second communication link.

87. A communication network as set forth in Claim 84, wherein said controller is responsive to applied input information indicating that a failure has been detected in said third communication path for controlling either said first switch to couple the at least one sixth communication link to the fifth communication link, or said at least one second switch to couple the fourth communication link to the at least one sixth communication link.

88. A method for operating a communication network comprising at least one line node coupled to at least two communication terminals, the method comprising the steps of:

forwarding a signal from a first one of the communication terminals towards a second one of the communication terminals through the at least one line node; and

within the at least one line node,

splitting the signal into corresponding signal portions and forwarding a first one of the signal portions through at least one first communication path towards the second communication terminal;

monitoring for a failure in the at least one first communication path; and

in response to detecting a failure in the at least one first communication path, routing a second one of the signal portions through an alternate communication path towards the second communication terminal.

89. A method for operating a communication network comprising a plurality of first communication terminals, at least one second communication terminal, and a plurality of communication links, the method comprising the steps of:

providing at least one node in the communication network, the at least one node comprising a plurality of communication paths, each for routing signals being communicated between a corresponding one of the first communication terminals and the at least one second terminal, each communication path having a first end coupled to a respective first communication link and a second end coupled

to a third communication link, the at least one node also comprising a switch having a plurality of first terminals and a second terminal, each of the first terminals being coupled to a respective one of the second communication links, the second terminal being coupled to the third communication link; and

within the at least one line node,

detecting a failure in at least one of the communication paths; and

in response to detecting a failure in a communication path, controlling the switch to couple a corresponding one of the second communication links to the third communication link, for providing an alternate route through those links for routing the signals.

REMARKS

Claims 1-89 are now pending in this application.

Claims 69-89 have been added to provide Applicant with a more complete scope of protection. Support for the added claims is provided throughout the specification and drawings as originally filed. For example, Claims 69-83 and 89 are supported at least in Fig. 3 and the accompanying